



TEKS Curriculum Framework for STAAR Alternate 2

Grade 3 Mathematics

STAAR Alternate 2 Mathematics Instructional Terms

The curriculum that will be assessed each year for STAAR Alternate 2 is determined by the essence statements that are selected for each administration. Teachers should refer to the Curriculum Framework documents for each selected essence statement to locate the prerequisite skills that are linked to that essence statement. Instruction should focus on the listed prerequisite skills. The teacher should determine what skills have been mastered and which need to be taught according to the developmental level of the student. The goal should be to assist the student in attaining the highest academic level the student is capable of within a given year. In addition to the prerequisite skills, there are instructional terms that students will need exposure to during instruction. The following list includes the terms for all the essence statements and not just the ones selected for a given administration. Students need to become familiar with these terms as the student is developmentally able to comprehend the content. Students in higher grades need to also know the terms presented in earlier grades.

Grade 3 Mathematics

set /dividing equally	alike/same as/different	length/longer/longest	three-dimensional geometric figures: sphere, cube, cone, rectangular prism, cylinder, pyramid
addition/subtraction models	pattern/extend	order: least to greatest, longest to shortest	
equal/total	number pair		
plus/minus	graph: category, label, row, column	measurement: weight, mass, capacity, area, height	needs/wants as related to budgets
number sentence	chart/picture graph/bar graph		earn money/save/spend
fact family	representation/represents	attributes: vertices, faces, edges	names and values of coins
numeral/odd/even	record/results/data	two-dimensional shape: circle, triangle, rectangle, square, polygon	
next to/after/before/between	fraction: whole, half, separate		

Grade 4 Mathematics

less than/more than	fractions: shaded parts of a whole, halves, fourths	symmetry	rounding
most/least		volume	spending plan

Grade 5 Mathematics

equation	triangles: right, acute, obtuse	parallel/intersecting/perpendicular lines	coordinate grid
equivalent fractions	congruent		decimal
numerator/denominator	square inch	number line/point on a number line	estimation
attributes of geometric figures: sides			

Grade 6 Mathematics

divide	table of related or paired numbers	area and formula of a rectangle or square: (length, width)	income/saving/spending
number line: whole numbers, halves	pictograph/line graph/point		ratio

Grade 7 Mathematics

multiply	congruence	linear relationships	mean/median/mode/range
attributes of geometric figures: bases	formula for perimeter	conversions	proportional
	percent	radius/diameter/circumference	budget/deposit/withdrawal

Grade 8 Mathematics

line of symmetry	horizontal/vertical	increase/decrease/expenses	probability
------------------	---------------------	----------------------------	-------------

Algebra I

grid/unit	square feet	rate/rate of change	expressions
recycled			

STAAR Reporting Category 1 – Numerical Representations and Relationships: The student will demonstrate an understanding of how to represent and manipulate numbers and expressions.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
<p>(3.2) Number and operations. The student applies mathematical process standards to represent and compare whole numbers and understand relationships related to place value. The student is expected to</p> <p>(A) compose and decompose numbers up to 100,000 as a sum of so many ten thousands, so many thousands, so many hundreds, so many tens, and so many ones using objects, pictorial models, and numbers, including expanded notation as appropriate; Readiness Standard</p> <p>(B) describe the mathematical relationships found in the base-10 place value system through the hundred thousands place; Supporting Standard</p> <p>(C) represent a number on a number line as being between two consecutive multiples of 10; 100; 1,000; or 10,000 and use words to describe relative size of numbers in order to round whole numbers; Supporting Standard</p> <p>(D) compare and order whole numbers up to 100,000 and represent comparisons using the symbols $>$, $<$, or $=$. Readiness Standard</p>	<p>Uses whole number relationships to demonstrate an understanding of place value.</p>

3.2 Prerequisite Skills/Links to TEKS Vertical Alignment

	<p><i>Determining and Simplifying Numeric and Algebraic Expressions</i></p> <ul style="list-style-type: none"> • use standard, word, and expanded forms to represent numbers up to 1,200 • use concrete and pictorial models to compose and decompose numbers up to 1,200 in more than one way as a sum of so many thousands, hundreds, tens, and ones • apply properties of operations to add and subtract two or three numbers • use objects, pictures, and expanded and standard forms to represent numbers up to 120 • use concrete and pictorial models to compose and decompose numbers up to 120 in more than one way as so many hundreds, so many tens, and so many ones • compose and decompose numbers up to 10 with objects and pictures
--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Continued

3.2**Prerequisite Skills/Links to TEKS Vertical Alignment***Identifying Points and Distances on Number Lines*

- represent whole numbers as distances from any given location on a number line
- name the whole number that corresponds to a specific point on a number line
- locate the position of a given whole number on an open number line

Geometry and spatial sense skills

- demonstrate use of location words (such as “over,” “under,” “above,” “on,” “beside,” “next to,” “between,” “in front of,” “near,” “far,” etc.)

Comparing, Ordering, and Rounding Numbers Using Place Value

- use an understanding of place value to determine the number that is 10 or 100 more or less than a given number up to 1,200
- use place value to compare and order whole numbers up to 1,200 using comparative language, numbers, and symbols ($>$, $<$, or $=$)
- use relationships to determine the number that is 10 more and 10 less than a given number up to 120
- represent the comparison of two numbers to 100 using the symbols $>$, $<$, or $=$
- order whole numbers up to 120 using place value and open number lines
- use place value to compare whole numbers up to 120 using comparative language
- use comparative language to describe two numbers up to 20 presented as written numerals
- compare sets of objects up to at least 20 in each set using comparative language

Recognizing Numbers and Counting

- determine whether a number up to 40 is even or odd using pairings of objects to represent the number
- generate a number that is greater than or less than a given whole number up to 1,200
- skip count by twos, fives, and tens to determine the total number of objects up to 120 in a set
- recite numbers forward and backward from any given number between 1 and 120
- generate a number that is greater than or less than a given whole number up to 120
- recognize instantly the quantity of structured arrangements
- recite numbers up to at least 100 by ones and tens beginning with any given number
- generate a number that is one more than or one less than another number up to at least 20
- generate a set using concrete and pictorial models that represents a number that is more than, less than, and equal to a given number up to 20
- recognize instantly the quantity of a small group of objects in organized and random arrangements
- count a set of objects up to at least 20 and demonstrate that the last number said tells the number of objects in the set regardless of their arrangement or order
- read, write, and represent whole numbers from 0 to at least 20 with and without objects or pictures
- count forward and backward to at least 20 with and without objects

Continued

3.2	Prerequisite Skills/Links to TEKS Vertical Alignment
	<p data-bbox="193 219 399 251">Counting skills</p> <ul data-bbox="241 251 1596 592" style="list-style-type: none"><li data-bbox="241 251 714 284">• recognize one-digit numerals, 0-9<li data-bbox="241 284 1176 316">• verbally identify, without counting, the number of objects from 1 to 5<li data-bbox="241 316 651 349">• use the verbal ordinal terms<li data-bbox="241 349 1386 381">• demonstrate understanding that when counting, the items can be chosen in any order<li data-bbox="241 381 1543 414">• count up to 10 items, and demonstrate that the last count indicates how many items were counted<li data-bbox="241 414 1596 446">• demonstrate that the order of the counting sequence is always the same, regardless of what is counted<li data-bbox="241 446 819 479">• count 1-10 items, with one count per item<li data-bbox="241 479 756 511">• use words to rote count from 1 to 30<li data-bbox="241 511 987 544">• know that objects, or parts of an object, can be counted

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 1 – Numerical Representations and Relationships: The student will demonstrate an understanding of how to represent and manipulate numbers and expressions.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
<p>(3.3) Number and operations. The student applies mathematical process standards to represent and explain fractional units. The student is expected to</p> <p>(A) represent fractions greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 using concrete objects and pictorial models, including strip diagrams and number lines; Supporting Standard</p> <p>(B) determine the corresponding fraction greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 given a specified point on a number line; Supporting Standard</p> <p>(C) explain that the unit fraction $\frac{1}{b}$ represents the quantity formed by one part of a whole that has been partitioned into b equal parts where b is a non-zero whole number; Supporting Standard</p> <p>(D) compose and decompose a fraction $\frac{a}{b}$ with a numerator greater than zero and less than or equal to b as a sum of parts $\frac{1}{b}$; Supporting Standard</p> <p>(E) solve problems involving partitioning an object or a set of objects among two or more recipients using pictorial representations of fractions with denominators of 2, 3, 4, 6, and 8; Supporting Standard</p> <p>(F) represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines; Readiness Standard</p> <p>(G) explain that two fractions are equivalent if and only if they are both represented by the same point on the number line or represent the same portion of a same size whole for an area model; Supporting Standard</p> <p>(H) compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models. Readiness Standard</p>	<p>Models and finds relationships among fractional units.</p>

Continued

3.3**Prerequisite Skills/Links to TEKS Vertical Alignment***Representing and Using Fractions, Decimals, Percents and Probability*

- identify examples and non-examples of halves, fourths, and eighths
- use concrete models to count fractional parts beyond one whole using words and recognize how many parts it takes to equal one whole
- explain that the more fractional parts used to make a whole, the smaller the part: the fewer the fractional parts, the larger the part
- partition objects into equal parts and name the parts, including halves, fourths, and eighths, using words
- identify examples and non-examples of halves and fourths
- partition two-dimensional figures into two and four fair shares or equal parts and describe the parts using words

Identifying Points and Distances on Number Lines

- represent whole numbers as distances from any given location on a number line
- name the whole number that corresponds to a specific point on a number line
- locate the position of a given whole number on an open number line

Geometry and spatial sense skills

- demonstrate use of location words (such as “over,” “under,” “above,” “on,” “beside,” “next to,” “between,” “in front of,” “near,” “far,” etc.)

Recognizing Numbers and Counting

- determine whether a number up to 40 is even or odd using pairings of objects to represent the number
- generate a number that is greater than or less than a given whole number up to 1,200
- skip count by twos, fives, and tens to determine the total number of objects up to 120 in a set
- recite numbers forward and backward from any given number between 1 and 120
- generate a number that is greater than or less than a given whole number up to 120
- recognize instantly the quantity of structured arrangements
- recite numbers up to at least 100 by ones and tens beginning with any given number
- generate a number that is one more than or one less than another number up to at least 20
- generate a set using concrete and pictorial models that represents a number that is more than, less than, and equal to a given number up to 20
- recognize instantly the quantity of a small group of objects in organized and random arrangements
- count a set of objects up to at least 20 and demonstrate that the last number said tells the number of objects in the set regardless of their arrangement or order
- read, write, and represent whole numbers from 0 to at least 20 with and without objects or pictures
- count forward and backward to at least 20 with and without objects

Counting skills

- recognize one-digit numerals, 0-9

Continued

3.3	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none">• verbally identify, without counting, the number of objects from 1 to 5• use the verbal ordinal terms• demonstrate understanding that when counting, the items can be chosen in any order• count up to 10 items, and demonstrate that the last count indicates how many items were counted• demonstrate that the order of the counting sequence is always the same, regardless of what is counted• count 1-10 items, with one count per item• use words to rote count from 1 to 30• know that objects, or parts of an object, can be counted

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 1 – Numerical Representations and Relationships: The student will demonstrate an understanding of how to represent and manipulate numbers and expressions.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectation
(3.4) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve problems with efficiency and accuracy. The student is expected to (I) determine if a number is even or odd using divisibility rules. Supporting Standard	Identifies even or odd numbers.

3.4 Prerequisite Skills/Links to TEKS Vertical Alignment

	<p><i>Recognizing Numbers and Counting</i></p> <ul style="list-style-type: none"> determine whether a number up to 40 is even or odd using pairings of objects to represent the number generate a number that is greater than or less than a given whole number up to 1,200 skip count by twos, fives, and tens to determine the total number of objects up to 120 in a set recite numbers forward and backward from any given number between 1 and 120 generate a number that is greater than or less than a given whole number up to 120 recognize instantly the quantity of structured arrangements recite numbers up to at least 100 by ones and tens beginning with any given number generate a number that is one more than or one less than another number up to at least 20 generate a set using concrete and pictorial models that represents a number that is more than, less than, and equal to a given number up to 20 recognize instantly the quantity of a small group of objects in organized and random arrangements count a set of objects up to at least 20 and demonstrate that the last number said tells the number of objects in the set regardless of their arrangement or order read, write, and represent whole numbers from 0 to at least 20 with and without objects or pictures count forward and backward to at least 20 with and without objects <p>Counting skills</p> <ul style="list-style-type: none"> recognize one-digit numerals, 0-9 verbally identify, without counting, the number of objects from 1 to 5 use the verbal ordinal terms demonstrate understanding that when counting, the items can be chosen in any order
--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Continued

3.4	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none">• count up to 10 items, and demonstrate that the last count indicates how many items were counted• demonstrate that the order of the counting sequence is always the same, regardless of what is counted• count 1-10 items, with one count per item• use words to rote count from 1 to 30• know that objects, or parts of an object, can be counted

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 1 – Numerical Representations and Relationships: The student will demonstrate an understanding of how to represent and manipulate numbers and expressions.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectation	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectation
(3.7) Geometry and measurement. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving customary and metric measurement. The student is expected to (A) represent fractions of halves, fourths, and eighths as distances from zero on a number line. Supporting Standard	Uses number lines to show fractions as distances from zero.

3.7 Prerequisite Skills/Links to TEKS Vertical Alignment

	<p><i>Identifying Points and Distances on Number Lines</i></p> <ul style="list-style-type: none"> • represent whole numbers as distances from any given location on a number line • name the whole number that corresponds to a specific point on a number line • locate the position of a given whole number on an open number line <p>Geometry and spatial sense skills</p> <ul style="list-style-type: none"> • demonstrate use of location words (such as “over,” “under,” “above,” “on,” “beside,” “next to,” “between,” “in front of,” “near,” “far,” etc.) <p><i>Recognizing Numbers and Counting</i></p> <ul style="list-style-type: none"> • determine whether a number up to 40 is even or odd using pairings of objects to represent the number • generate a number that is greater than or less than a given whole number up to 1,200 • skip count by twos, fives, and tens to determine the total number of objects up to 120 in a set • recite numbers forward and backward from any given number between 1 and 120 • generate a number that is greater than or less than a given whole number up to 120 • recognize instantly the quantity of structured arrangements • recite numbers up to at least 100 by ones and tens beginning with any given number • generate a number that is one more than or one less than another number up to at least 20 • generate a set using concrete and pictorial models that represents a number that is more than, less than, and equal to a given number up to 20 • recognize instantly the quantity of a small group of objects in organized and random arrangements • count a set of objects up to at least 20 and demonstrate that the last number said tells the number of objects in the set regardless of their arrangement or order
--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Continued

3.7 Prerequisite Skills/Links to TEKS Vertical Alignment
<ul style="list-style-type: none"> • read, write, and represent whole numbers from 0 to at least 20 with and without objects or pictures • count forward and backward to at least 20 with and without objects <p>Counting skills</p> <ul style="list-style-type: none"> • recognize one-digit numerals, 0-9 • verbally identify, without counting, the number of objects from 1 to 5 • use the verbal ordinal terms • demonstrate understanding that when counting, the items can be chosen in any order • count up to 10 items, and demonstrate that the last count indicates how many items were counted • demonstrate that the order of the counting sequence is always the same, regardless of what is counted • count 1-10 items, with one count per item • use words to rote count from 1 to 30 • know that objects, or parts of an object, can be counted <p><i>Comparing, Ordering, and Rounding Numbers Using Place Value</i></p> <ul style="list-style-type: none"> • use an understanding of place value to determine the number that is 10 or 100 more or less than a given number up to 1,200 • use place value to compare and order whole numbers up to 1,200 using comparative language, numbers, and symbols ($>$, $<$, or $=$) • use relationships to determine the number that is 10 more and 10 less than a given number up to 120 • represent the comparison of two numbers to 100 using the symbols $>$, $<$, or $=$ • order whole numbers up to 120 using place value and open number lines • use place value to compare whole numbers up to 120 using comparative language • use comparative language to describe two numbers up to 20 presented as written numerals • compare sets of objects up to at least 20 in each set using comparative language

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 2 – Computations and Algebraic Relationships: The student will demonstrate an understanding of how to perform operations and represent algebraic relationships.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
<p>(3.4) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve problems with efficiency and accuracy. The student is expected to</p> <ul style="list-style-type: none"> (A) solve with fluency one-step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value, properties of operations, and the relationship between addition and subtraction; Readiness Standard (B) round to the nearest 10 or 100 or use compatible numbers to estimate solutions to addition and subtraction problems; Supporting Standard (D) determine the total number of objects when equally sized groups of objects are combined or arranged in arrays up to 10 by 10; Supporting Standard (E) represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line, and skip counting; Supporting Standard (F) recall facts to multiply up to 10 by 10 with automaticity and recall the corresponding division facts; Supporting Standard (G) use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties; Supporting Standard (H) determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally; Supporting Standard (J) determine a quotient using the relationship between multiplication and division; Supporting Standard (K) solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts. Readiness Standard 	<p>Solves problems using operations involving whole numbers.</p>

Continued

3.4**Prerequisite Skills/Links to TEKS Vertical Alignment***Adding and Subtracting Whole Numbers, Fractions, and Decimals*

- solve one-step and multi-step word problems involving addition and subtraction within 1,000 using a variety of strategies based on place value, including algorithms
- add up to four two-digit numbers and subtract two-digit numbers using mental strategies and algorithms based on knowledge of place value and properties of operations
- recall basic facts to add and subtract within 20 with automaticity
- explain strategies used to solve addition and subtraction problems up to 20 using spoken words, objects, pictorial models, and number sentences
- apply basic fact strategies to add and subtract within 20, including making 10 and decomposing a number leading to a 10
- compose 10 with two or more addends with and without concrete objects
- use objects and pictorial models to solve word problems involving joining, separating, and comparing sets within 20 and unknowns as any one of the terms in the problem such as $2 + 4 = []$; $3 + [] = 7$; and $5 = [] - 3$
- use concrete and pictorial models to determine the sum of a multiple of 10 and a one-digit number in problems up to 99
- explain the strategies used to solve problems involving adding and subtracting within 10 using spoken words, concrete and pictorial models, and number sentences
- solve word problems using objects and drawings to find sums up to 10 and differences within 10
- model the action of joining to represent addition and the action of separating to represent subtraction

Multiplying Whole Numbers, Fractions, and Decimals

- model, create, and describe contextual multiplication situations in which equivalent sets of concrete objects are joined

Dividing Whole Numbers, Fractions, and Decimals

- model, create, and describe contextual division situations in which a set of concrete objects is separated into equivalent sets

Adding to/taking away skills

- use informal strategies to share or divide up to 10 items equally
- use concrete models or make a verbal word problem for subtracting 1–5 objects from a set
- use concrete models or make a verbal word problem for adding up to 5 objects

Recognizing Numbers and Counting

- determine whether a number up to 40 is even or odd using pairings of objects to represent the number
- generate a number that is greater than or less than a given whole number up to 1,200
- skip count by twos, fives, and tens to determine the total number of objects up to 120 in a set
- recite numbers forward and backward from any given number between 1 and 120
- generate a number that is greater than or less than a given whole number up to 120
- recognize instantly the quantity of structured arrangements
- recite numbers up to at least 100 by ones and tens beginning with any given number
- generate a number that is one more than or one less than another number up to at least 20

Continued

3.4	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"> • generate a set using concrete and pictorial models that represents a number that is more than, less than, and equal to a given number up to 20 • recognize instantly the quantity of a small group of objects in organized and random arrangements • count a set of objects up to at least 20 and demonstrate that the last number said tells the number of objects in the set regardless of their arrangement or order • read, write, and represent whole numbers from 0 to at least 20 with and without objects or pictures • count forward and backward to at least 20 with and without objects <p>Counting skills</p> <ul style="list-style-type: none"> • recognize one-digit numerals, 0-9 • verbally identify, without counting, the number of objects from 1 to 5 • use the verbal ordinal terms • demonstrate understanding that when counting, the items can be chosen in any order • count up to 10 items, and demonstrate that the last count indicates how many items were counted • demonstrate that the order of the counting sequence is always the same, regardless of what is counted • count 1-10 items, with one count per item • use words to rote count from 1 to 30 • know that objects, or parts of an object, can be counted

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 2 – Computations and Algebraic Relationships: The student will demonstrate an understanding of how to perform operations and represent algebraic relationships.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
<p>(3.5) Algebraic reasoning. The student applies mathematical process standards to analyze and create patterns and relationships. The student is expected to</p> <p>(A) represent one- and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations; Readiness Standard</p> <p>(B) represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations; Readiness Standard</p> <p>(C) describe a multiplication expression as a comparison such as 3×24 represents 3 times as much as 24; Supporting Standard</p> <p>(D) determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product; Supporting Standard</p> <p>(E) represent real-world relationships using number pairs in a table and verbal descriptions. Readiness Standard</p>	<p>Models or solves problems involving whole number relationships.</p>

3.5 Prerequisite Skills/Links to TEKS Vertical Alignment

	<p><i>Representing and Solving Algebraic Relationships</i></p> <ul style="list-style-type: none"> represent and solve addition and subtraction word problems where unknowns may be any one of the terms in the problem generate and solve problem situations for a given mathematical number sentence involving addition and subtraction of whole numbers within 1,000 determine the unknown whole number in an addition or subtraction equation when the unknown may be any one of the three or four terms in the equation understand that the equal sign represents a relationship where expressions on each side of the equal sign represent the same value(s) represent word problems involving addition and subtraction of whole numbers up to 20 using concrete and pictorial models and number sentences generate and solve problem situations when given a number sentence involving addition or subtraction of numbers within 20 <p>Classification and patterns skills</p> <ul style="list-style-type: none"> recognize and create patterns
--	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Continued

3.5**Prerequisite Skills/Links to TEKS Vertical Alignment***Adding and Subtracting Whole Numbers, Fractions, and Decimals*

- solve one-step and multi-step word problems involving addition and subtraction within 1,000 using a variety of strategies based on place value, including algorithms
- add up to four two-digit numbers and subtract two- digit numbers using mental strategies and algorithms based on knowledge of place value and properties of operations
- recall basic facts to add and subtract within 20 with automaticity
- explain strategies used to solve addition and subtraction problems up to 20 using spoken words, objects, pictorial models, and number sentences
- apply basic fact strategies to add and subtract within 20, including making 10 and decomposing a number leading to a 10
- compose 10 with two or more addends with and without concrete objects
- use objects and pictorial models to solve word problems involving joining, separating, and comparing sets within 20 and unknowns as any one of the terms in the problem such as
 $2 + 4 = []$; $3 + [] = 7$; and $5 = [] - 3$
- use concrete and pictorial models to determine the sum of a multiple of 10 and a one- digit number in problems up to 99
- explain the strategies used to solve problems involving adding and subtracting within 10 using spoken words, concrete and pictorial models, and number sentences
- solve word problems using objects and drawings to find sums up to 10 and differences within 10
- model the action of joining to represent addition and the action of separating to represent subtraction

Multiplying Whole Numbers, Fractions, and Decimals

- model, create, and describe contextual multiplication situations in which equivalent sets of concrete objects are joined

Dividing Whole Numbers, Fractions, and Decimals

- model, create, and describe contextual division situations in which a set of concrete objects is separated into equivalent sets (2)

Adding to/taking away skills

- use informal strategies to share or divide up to 10 items equally
- use concrete models or make a verbal word problem for subtracting 1–5 objects from a set
- use concrete models or make a verbal word problem for adding up to 5 objects

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 3 – Geometry and Measurement: The student will demonstrate an understanding of how to represent and apply geometry and measurement concepts.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
<p>(3.6) Geometry and measurement. The student applies mathematical process standards to analyze attributes of two-dimensional geometric figures to develop generalizations about their properties. The student is expected to</p> <p>(A) classify and sort two- and three-dimensional figures, including cones, cylinders, spheres, triangular and rectangular prisms, and cubes, based on attributes using formal geometric language; Readiness Standard</p> <p>(B) use attributes to recognize rhombuses, parallelograms, trapezoids, rectangles, and squares as examples of quadrilaterals and draw examples of quadrilaterals that do not belong to any of these subcategories; Supporting Standard</p> <p>(C) determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row; Readiness Standard</p> <p>(D) decompose composite figures formed by rectangles into non-overlapping rectangles to determine the area of the original figure using the additive property of area; Supporting Standard</p> <p>(E) decompose two congruent two-dimensional figures into parts with equal areas and express the area of each part as a unit fraction of the whole and recognize that equal shares of identical wholes need not have the same shape. Supporting Standard</p>	<p>Identifies geometric figures using attributes.</p>

3.6 Prerequisite Skills/Links to TEKS Vertical Alignment

	<p><i>Identifying and Using Attributes of Geometric Figures</i></p> <ul style="list-style-type: none"> decompose two-dimensional shapes such as cutting out a square from a rectangle, dividing a shape in half, or partitioning a rectangle into identical triangles and identify the resulting geometric parts compose two-dimensional shapes and three-dimensional solids with given properties or attributes classify and sort polygons with 12 or fewer sides according to attributes, including identifying the number of sides and number of vertices
--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Continued

3.6**Prerequisite Skills/Links to TEKS Vertical Alignment**

- classify and sort three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes as special rectangular prisms), and triangular prisms, based on attributes using formal geometric language
- create two-dimensional shapes based on given attributes, including number of sides and vertices
- compose two-dimensional shapes by joining two, three, or four figures to produce a target shape in more than one way if possible
- identify three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes), and triangular prisms, and describe their attributes using formal geometric language
- identify two-dimensional shapes, including circles, triangles, rectangles, and squares, as special rectangles, rhombuses, and hexagons, and describe their attributes using formal geometric language
- create two-dimensional figures, including circles, triangles, rectangles, and squares, as special rectangles, rhombuses, and hexagons
- distinguish between attributes that define a two-dimensional or three-dimensional figure and attributes that do not define the shape
- classify and sort regular and irregular two-dimensional shapes based on attributes using informal geometric language
- create two-dimensional shapes using a variety of materials and drawings
- classify and sort a variety of regular and irregular two- and three-dimensional figures regardless of orientation or size
- identify attributes of two-dimensional shapes using informal and formal geometric language interchangeably
- identify two-dimensional components of three-dimensional objects
- identify three-dimensional solids, including cylinders, cones, spheres, and cubes, in the real world
- identify two-dimensional shapes, including circles, triangles, rectangles, and squares as special rectangles

Geometry and spatial sense skills

- slide, flip, and turn shapes to demonstrate that the shapes remain the same
- create shapes
- name common shapes

Measuring Length, Area, Volume, and Weight/Mass

- use concrete models of square units to find the area of a rectangle by covering it with no gaps or overlaps, counting to find the total number of square units, and describing the measurement using a number and the unit
- determine a solution to a problem involving length, including estimating lengths
- determine the length of an object to the nearest marked unit using rulers, yardsticks, meter sticks, or measuring tapes
- describe the inverse relationship between the size of the unit and the number of units needed to equal the length of an object
- find the length of objects using concrete models for standard units of length
- describe a length to the nearest whole unit using a number and a unit
- measure the same object/ distance with units of two different lengths and describe how and why the measurements differ

Continued

3.6	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none">• illustrate that the length of an object is the number of same-size units of length that, when laid end-to-end with no gaps or overlaps, reach from one end of the object to the other• use measuring tools to measure the length of objects to reinforce the continuous nature of linear measurement• compare two objects with a common measurable attribute to see which object has more of/ less of the attribute and describe the difference• give an example of a measurable attribute of a given object, including length, capacity, and weight <p>Measurement skills</p> <ul style="list-style-type: none">• informally recognize and compare weights of objects or people• recognize how much can be placed within an object• recognize and compare heights or lengths of people or objects

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 3 – Geometry and Measurement: The student will demonstrate an understanding of how to represent and apply geometry and measurement concepts.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
<p>(3.7) Geometry and measurement. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving customary and metric measurement. The student is expected to</p> <p>(B) determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in problems; Readiness Standard</p> <p>C) determine the solutions to problems involving addition and subtraction of time intervals in minutes using pictorial models or tools such as a 15-minute event plus a 30-minute event equals 45 minutes; Supporting Standard</p> <p>(D) determine when it is appropriate to use measurements of liquid volume (capacity) or weight; Supporting Standard</p> <p>(E) determine liquid volume (capacity) or weight using appropriate units and tools. Supporting Standard</p>	<p>Solves problems involving perimeter, time, liquid volume (capacity), or weight.</p>

3.7 Prerequisite Skills/Links to TEKS Vertical Alignment

	<p><i>Measuring Length, Area, Volume, and Weight/Mass</i></p> <ul style="list-style-type: none"> • use concrete models of square units to find the area of a rectangle by covering it with no gaps or overlaps, counting to find the total number of square units, and describing the measurement using a number and the unit • determine a solution to a problem involving length, including estimating lengths • determine the length of an object to the nearest marked unit using rulers, yardsticks, meter sticks, or measuring tapes • describe the inverse relationship between the size of the unit and the number of units needed to equal the length of an object • find the length of objects using concrete models for standard units of length • describe a length to the nearest whole unit using a number and a unit • measure the same object/ distance with units of two different lengths and describe how and why the measurements differ • illustrate that the length of an object is the number of same-size units of length that, when laid end-to-end with no gaps or overlaps, reach from one end of the object to the other • use measuring tools to measure the length of objects to reinforce the continuous nature of linear measurement • compare two objects with a common measurable attribute to see which object has more of/ less of the attribute and describe the difference • give an example of a measurable attribute of a given object, including length, capacity, and weight
--	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Continued

3.7	Prerequisite Skills/Links to TEKS Vertical Alignment
	<p data-bbox="191 220 390 248"><i>Measuring Time</i></p> <ul data-bbox="226 256 1919 326" style="list-style-type: none"><li data-bbox="226 256 1919 289">• read and write time to the nearest one-minute increment using analog and digital clocks and distinguish between a.m. and p.m.<li data-bbox="226 293 1119 326">• tell time to the hour and half hour using analog and digital clocks <p data-bbox="191 331 453 358">Measurement skills</p> <ul data-bbox="226 367 1167 513" style="list-style-type: none"><li data-bbox="226 367 1167 399">• use language to describe concepts associated with the passing of time<li data-bbox="226 404 1083 436">• informally recognize and compare weights of objects or people<li data-bbox="226 441 940 474">• recognize how much can be placed within an object<li data-bbox="226 479 1068 513">• recognize and compare heights or lengths of people or objects

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 4 – Data Analysis and Personal Financial Literacy: The student will demonstrate an understanding of how to represent and analyze data and how to describe and apply personal financial concepts.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
<p>(3.4) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve problems with efficiency and accuracy. The student is expected to</p> <p>(C) determine the value of a collection of coins and bills.</p> <p>Supporting Standard</p>	<p>Solves problems involving collections of coins and bills.</p>

3.4 Prerequisite Skills/Links to TEKS Vertical Alignment

	<p><i>Determining Values of Coins and Bills</i></p> <ul style="list-style-type: none"> • use the cent symbol, dollar sign, and the decimal point to name the value of a collection of coins • determine the value of a collection of coins up to one dollar • use relationships to count by twos, fives, and tens to determine the value of a collection of pennies, nickels, and/ or dimes • write a number with the cent symbol to describe the value of a coin • identify U.S. coins, including pennies, nickels, dimes, and quarters, by value and describe the relationships among them • identify U.S. coins by name, including pennies, nickels, dimes, and quarters <p><i>Recognizing Numbers and Counting</i></p> <ul style="list-style-type: none"> • determine whether a number up to 40 is even or odd using pairings of objects to represent the number • generate a number that is greater than or less than a given whole number up to 1,200 • skip count by twos, fives, and tens to determine the total number of objects up to 120 in a set • recite numbers forward and backward from any given number between 1 and 120 • generate a number that is greater than or less than a given whole number up to 120 • recognize instantly the quantity of structured arrangements • recite numbers up to at least 100 by ones and tens beginning with any given number • generate a number that is one more than or one less than another number up to at least 20 • generate a set using concrete and pictorial models that represents a number that is more than, less than, and equal to a given number up to 20 • recognize instantly the quantity of a small group of objects in organized and random arrangements • count a set of objects up to at least 20 and demonstrate that the last number said tells the number of objects in the set regardless of their arrangement or order • read, write, and represent whole numbers from 0 to at least 20 with and without objects or pictures • count forward and backward to at least 20 with and without objects
--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Continued

3.4**Prerequisite Skills/Links to TEKS Vertical Alignment****Counting skills**

- recognize one-digit numerals, 0-9
- verbally identify, without counting, the number of objects from 1 to 5
- use the verbal ordinal terms
- demonstrate understanding that when counting, the items can be chosen in any order
- count up to 10 items, and demonstrate that the last count indicates how many items were counted
- demonstrate that the order of the counting sequence is always the same, regardless of what is counted
- count 1-10 items, with one count per item
- use words to rote count from 1 to 30
- know that objects, or parts of an object, can be counted

Comparing, Ordering, and Rounding Numbers Using Place Value

- use an understanding of place value to determine the number that is 10 or 100 more or less than a given number up to 1,200
- use place value to compare and order whole numbers up to 1,200 using comparative language, numbers, and symbols ($>$, $<$, or $=$)
- use relationships to determine the number that is 10 more and 10 less than a given number up to 120
- represent the comparison of two numbers to 100 using the symbols $>$, $<$, or $=$
- order whole numbers up to 120 using place value and open number lines
- use place value to compare whole numbers up to 120 using comparative language
- use comparative language to describe two numbers up to 20 presented as written numerals
- compare sets of objects up to at least 20 in each set using comparative language

Adding and Subtracting Whole Numbers, Fractions, and Decimals

- solve one-step and multi-step word problems involving addition and subtraction within 1,000 using a variety of strategies based on place value, including algorithms
- add up to four two-digit numbers and subtract two-digit numbers using mental strategies and algorithms based on knowledge of place value and properties of operations
- recall basic facts to add and subtract within 20 with automaticity
- explain strategies used to solve addition and subtraction problems up to 20 using spoken words, objects, pictorial models, and number sentences
- apply basic fact strategies to add and subtract within 20, including making 10 and decomposing a number leading to a 10
- compose 10 with two or more addends with and without concrete objects
- use objects and pictorial models to solve word problems involving joining, separating, and comparing sets within 20 and unknowns as any one of the terms in the problem such as $2 + 4 = []$; $3 + [] = 7$; and $5 = [] - 3$
- use concrete and pictorial models to determine the sum of a multiple of 10 and a one-digit number in problems up to 99

Continued

3.4	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"> • explain the strategies used to solve problems involving adding and subtracting within 10 using spoken words, concrete and pictorial models, and number sentences • solve word problems using objects and drawings to find sums up to 10 and differences within 10 • model the action of joining to represent addition and the action of separating to represent subtraction <p><i>Multiplying Whole Numbers, Fractions, and Decimals</i></p> <ul style="list-style-type: none"> • model, create, and describe contextual multiplication situations in which equivalent sets of concrete objects are joined <p><i>Dividing Whole Numbers, Fractions, and Decimals</i></p> <ul style="list-style-type: none"> • model, create, and describe contextual division situations in which a set of concrete objects is separated into equivalent sets <p>Adding to/taking away skills</p> <ul style="list-style-type: none"> • use informal strategies to share or divide up to 10 items equally • use concrete models or make a verbal word problem for subtracting 1–5 objects from a set • use concrete models or make a verbal word problem for adding up to 5 objects

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 4 – Data Analysis and Personal Financial Literacy: The student will demonstrate an understanding of how to represent and analyze data and how to describe and apply personal financial concepts.	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
<p>(3.8) Data analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. The student is expected to</p> <p>(A) summarize a data set with multiple categories using a frequency table, dot plot, pictograph, or bar graph with scaled intervals; Readiness Standard</p> <p>(B) solve one- and two-step problems using categorical data represented with a frequency table, dot plot, pictograph, or bar graph with scaled intervals. Supporting Standard</p>	<p>Uses graphs to organize and interpret data.</p>
3.8 Prerequisite Skills/Links to TEKS Vertical Alignment	
<p><i>Collecting and Representing Data</i></p> <ul style="list-style-type: none"> organize a collection of data with up to four categories using pictographs and bar graphs with intervals of one or more explain that the length of a bar in a bar graph or the number of pictures in a pictograph represents the number of data points for a given category use data to create picture and bar-type graphs collect, sort, and organize data in up to three categories using models/ representations such as tally marks or T-charts use data to create real- object and picture graphs collect, sort, and organize data into two or three categories <p>Classification and patterns skills</p> <ul style="list-style-type: none"> collect data and organize it in a graphic representation sort objects that are the same and different into groups and use language to describe how the groups are similar and different <p><i>Using Data</i></p> <ul style="list-style-type: none"> draw conclusions and make predictions from information in a graph write and solve one-step word problems involving addition or subtraction using data represented within pictographs and bar graphs with intervals of one draw conclusions and generate and answer questions using information from picture and bar-type graphs draw conclusions from real-object and picture graphs 	

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 4 – Data Analysis and Personal Financial Literacy: The student will demonstrate an understanding of how to represent and analyze data and how to describe and apply personal financial concepts.	
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
<p>(3.9) Personal financial literacy. The student applies mathematical process standards to manage one’s financial resources effectively for lifetime financial security. The student is expected to</p> <p>(A) explain the connection between human capital/ labor and income; Supporting Standard</p> <p>(B) describe the relationship between the availability or scarcity of resources and how that impacts cost; Supporting Standard</p> <p>(D) explain that credit is used when wants or needs exceed the ability to pay and that it is the borrower’s responsibility to pay it back to the lender, usually with interest; Supporting Standard</p> <p>(E) list reasons to save and explain the benefit of a savings plan, including for college. Supporting Standard</p>	<p>Recognizes how money can be earned, spent, and saved.</p>
3.9 Prerequisite Skills/Links to TEKS Vertical Alignment	
	<p><i>Understanding the Connections Among Income, Expenses, and Careers</i></p> <ul style="list-style-type: none"> • identify income as a means of obtaining goods and services, oftentimes making choices between wants and needs • define money earned as income • distinguish between wants and needs and identify income as a source to meet one's wants and needs • list simple skills required for jobs • differentiate between money received as income and money received as gifts • identify ways to earn income <p><i>Managing Finances</i></p> <ul style="list-style-type: none"> • differentiate between producers and consumers and calculate the cost to produce a simple item • identify examples of lending and use concepts of benefits and costs to evaluate lending decisions • identify examples of borrowing and distinguish between responsible and irresponsible borrowing • distinguish between a deposit and a withdrawal • explain that saving is an alternative to spending • calculate how money saved can accumulate into a larger amount over time • consider charitable giving • distinguish between spending and saving

Continued

3.9	Prerequisite Skills/Links to TEKS Vertical Alignment
	<p data-bbox="199 215 657 248"><i>Determining Values of Coins and Bills</i></p> <ul data-bbox="241 264 1848 487" style="list-style-type: none"><li data-bbox="241 264 1522 297">• use the cent symbol, dollar sign, and the decimal point to name the value of a collection of coins<li data-bbox="241 297 1050 329">• determine the value of a collection of coins up to one dollar<li data-bbox="241 329 1848 362">• use relationships to count by twos, fives, and tens to determine the value of a collection of pennies, nickels, and/ or dimes<li data-bbox="241 362 1144 394">• write a number with the cent symbol to describe the value of a coin<li data-bbox="241 394 1827 427">• identify U.S. coins, including pennies, nickels, dimes, and quarters, by value and describe the relationships among them<li data-bbox="241 427 1260 459">• identify U.S. coins by name, including pennies, nickels, dimes, and quarters

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

Mathematical Process Standards – Mathematical process standards will not be listed under a separate reporting category. Instead, they will be incorporated into test questions across reporting categories since the application of mathematical process standards is part of each knowledge statement.

TEKS Knowledge and Skills Statement/STAAR-Tested Student Expectations

(3.1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to

- (A) apply mathematics to problems arising in everyday life, society, and the workplace;
- (B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;
- (C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;
- (D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
- (E) create and use representations to organize, record, and communicate mathematical ideas;
- (F) analyze mathematical relationships to connect and communicate mathematical ideas; and
- (G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

3.1 Prerequisite Skills/Links to TEKS Vertical Alignment

- display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.
- analyze mathematical relationships to connect and communicate mathematical ideas
- create and use representations to organize, record, and communicate mathematical ideas
- communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate
- select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems
- use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution
- apply mathematics to problems arising in everyday life, society, and the workplace

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.